CLAIM AMENDMENTS

Claim 1. (currently amended) A system for batch processing a plurality of different combinatorial catalyst materials for evaluation comprising:

a physical vapor deposition apparatus including a sealable deposition chamber having a load lock chamber for receiving sample assemblies to be processed, the deposition chamber including a plurality of separately controllable plasma sources radially disposed about a central location within the deposition chamber such that the plasma directed from the sources may be focused upon the central location and a substrate disposed upon a shaft vertically positioned at the central location of the deposition chamber around which shaft the substrate may axially rotate, the substrate having a plurality of ~~discrete separated sample assembly areas~~spots thereon to which the plasma may be directed, each of the plurality of separately controllable plasma sources comprising a cluster of plasma guns each gun connected to a certain deposition material type to be deposited and oriented with respect to the central location such that each gun in the cluster may be simultaneously focused upon a selected ~~sample assembly~~spot in the central location wherein the deposition of plasma of a predetermined type and in a predetermined amount upon each selected ~~sample assembly~~spot by each plasma gun is individually controlled by varying an amount of power and an amount of time of deposition for the type of material on a selected area for each gun;

the substrate being controllably positionable within the deposition chamber such that a first ~~sample assembly~~spot upon the substrate may be positioned in accordance with a selection from a matrix of z, x and y coordinates that define the location of the ~~sample assembly~~spot, wherein, z defines axial rotation coordinates that align the ~~sample assembly~~spot on the substrate with one of the plasma gun clusters, x defines vertical coordinates that align the same ~~sample assembly~~spot with the same one of the plasma gun clusters and y defines horizontal coordinates that align the same ~~sample assembly~~spot with the same one of the plasma gun clusters, each such alignment occurring when the plasma gun clusters are sequentially focused upon each ~~sample assembly~~spot as the substrate rotates to a fixed radial position around the central axis;

controlling the power, time and material type of the plasma deposition from each source for each ~~selected area~~ spot when the plasma source and the substrate are sequentially aligned with respect to each cluster according to the z, x, y coordinates of the matrix.

Claim 2. (currently amended) The system of claim 1 in which controlling the plasma sources comprises inputting parameters determined for the selected area the parameters

comprising the amount of power, the amount of time, and the characteristics of the material type to be deposited by the plasma source upon ~~the selected area~~ each spot of the substrate.

Claim 3. (cancelled)

Claim 4. (cancelled)

Claim 5. (cancelled)

Claim 6. (currently amended) The system of claim 1 in which the substrate includes multiple separately defined ~~circular areas~~ spots and is centrally positioned within the chamber, the substrate being moveable with respect to a program controlled x-y table such that each separately defined ~~circular area~~spot upon the surface of the substrate may be positioned by control means for the x-y table in alignment with the focus of a plasma source.

Claim 7. (cancelled)

Claim 8. (currently amended) The system of claim 6 in which the multiple separately defined selected ~~circular areas~~spots of the substrate are arranged in the matrix defined by columns and rows.

Claim 9. (currently amended) The system of claim 8 in which a number $(_N)$ of separately defined ~~circular areas~~spots in the rows and a number of separately defined circular areas $(_N)$ in the columns is $rows_N = columns_N$.

Claim 10. (currently amended) The system of claim 9 in which a relationship a number $(_N)$ of separately defined ~~circular areas~~spots in one column to the number of separately defined ~~circular areas~~spots in an adjacent column is: ~~areas~~spots in $column_N = N$ and spots~~areas~~ in adjacent $column_{N+1} = N+1$.

Claim 11. (currently amended) The system of claim 8 in which a relationship of a number of separately defined ~~circular areas~~spots in one row to the number of separately defined ~~areas~~spots in an adjacent row is: ~~areas~~ spots in $row_N = N$ and spots~~areas~~ in adjacent $row_{N-1} = N-1$.

Claim 12. (currently amended) The system of claim 1 in which the plasma sources are controlled such that the materials originating from the sources are deposited upon ~~a selected area~~ each spot of the substrate in either of 1) a sequential layer deposition and 2) a co-deposition.

Claim 13. (currently amended) The system of claim 8 wherein the substrate comprises a side surface of a block positioned within the central location of the chamber, the block having a multiplicity of cylindrical substrate elements extending from the side surface thereof, each cylindrical substrate element individually defining a selected ~~area~~spot, the cylindrical substrate elements maintained in an array of columns and rows formed within the block, in which upper surfaces of the cylindrical substrate elements comprise the discrete ~~areas~~ spots exposed to the sources.

Claim 14. (previously presented) The system of claim 13 in which the cylindrical substrate elements are inset within the block in the matrix and a plate having a plate matrix of openings concentric with the matrix of elements in the block is applied facing the surface of the block, such that the openings in the plate are aligned with the elements and a cross-section area of an opening in the plate is less than a cross-section area of the surface of the corresponding concentric cylindrical element.

Claim 15. (currently amended) The system of claim 1 in which controlling each plasma source includes selecting one or more than one of at least: 1) an ion emitted by each plasma source within a cluster; 2) the amount of power and the duration of operation for the source; and 3) the position of the substrate, such that ~~the~~ each selected ~~area~~ spot of the substrate is exposed to the plasma source at the selected power and at the selected duration.

Claim 16. (currently amended) The system of claim 15 in which selecting plasma sources and controlling the amount of power and the duration of operation of the source includes controlling the sources in the same operation such that plasma materials from the sources are co-deposited with respect to ~~the selected area~~each spot on the surface of the substrate.

Claim 17. (currently amended) The system of claim 15 in which selecting plasma sources and controlling the amount of power and the duration of operation of the sources includes

controlling the sources in the same operation such that plasma materials from the sources are deposited as layers with respect to ~~the selected area~~each spot on the surface of the substrate.

Claim 18. (currently amended) The system of claim 15 in which controlling ions includes selecting one or more than one of at least: 1) one plasma source within a cluster; 2) the amount of power and the duration of operation of the source; and 3) the position of the substrate, such that ~~the selected area~~each spot of the substrate is exposed to the selected plasma source at the selected power and at the selected duration.

Claim 19. (currently amended) The system of claim 18 in which selecting the plasma source and controlling the amount of power and the duration of operation of the source includes controlling the sources in essentially the same operation such that plasma materials from the sources are co-deposited with respect to ~~the selected area~~each spot on the surface of the substrate.

Claim 20. (currently amended) The system of claim 18 in which selecting the plasma source and controlling the amount of power and the duration of operation of the source includes controlling the sources in essentially the same operation such that plasma materials from the sources are deposited as layers with respect to ~~the selected area~~each spot on the surface of the substrate.